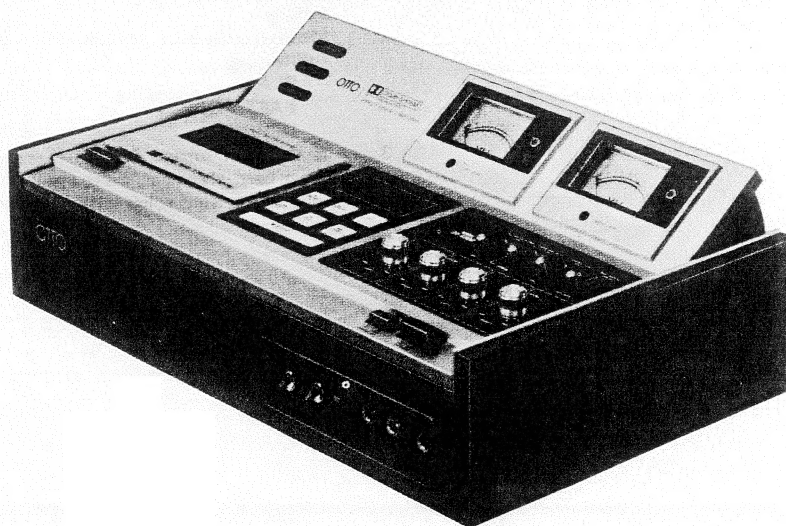




SANYO

SANYO CASSETTE TAPE DECK RD4600_{UM} SERVICE MANUAL



SPECIFICATIONS

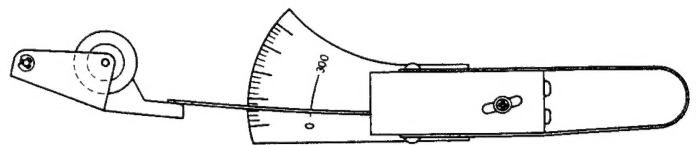
Recording System:	AC bias 4 track 2 channel
Erasing system:	AC erase
Tape speed:	1-7/8 IPS. (4.75 cm/sec.)
Recording time:	60 min (C-60)
Rew & F. Fwd time:	1 min. 30 sec. (C-60)
Frequency response:	30 ~ 13,000 Hz
	30 ~ 16,000 Hz (CrO2 tape)
Signal to Noise ratio:	Dolby OFF: 50dB
	ON: 58 dB
Wow & Flutter:	0.07% WRMS
Bias oscillator frequency:	90 ~ 103 kHz
Input terminal:	MIC: -70 dB 200 ~ 10 k ohm
	AUX IN: -20 dB 100K ohm
	DIN INPUT: -55 dB 10K ohm
Output terminal:	LINE OUT: 0.775V 2K ohm
	DIN OUTPUT: 0.775V 2K ohm
	HEADPHONE: 30mV 8 ohm
Power consumption:	20 W
Power source:	AC 110 125, 220V 50/60 Hz
Dimension (approx.):	466 x 284 x 104 mm
Weight (approx.):	7.5 kg

DISASSEMBLY INSTRUCTION

1. Remove the AC power supply cord from the unit.
2. Remove the Dolby level control knobs on the front of the unit.
3. Put the unit front side down on a soft sheet.
4. Remove two washers and legs each at the front on the cabinet bottom.
5. Turn over unit and take away the chassis from the cabinet.
6. Remove the seven screws (Pan Hd. Tapping 3 x 8 4, Pan Hd. 3 x 35 1, Pan Hd. 3 x 30 2) fixing deck panel to chassis.
7. Remove four level control knobs from shafts.
8. Pull out a shaft from hinge for meter panel and operation panel.
NOTE:
Should not lose two spring coils for meter deck panel.
9. To remove the meter deck panel from operation panel, pull out a pin fixing damper of panel-up mechanism to chassis, and remove the two jumper lead's plugs which connect deck panel with chassis.

PINCH ROLLER ADJUSTMENT

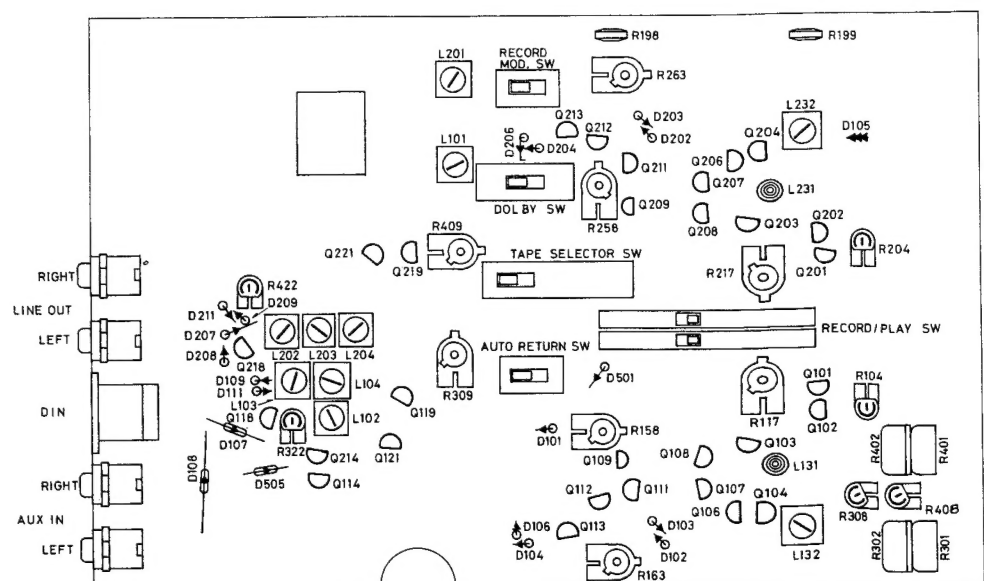
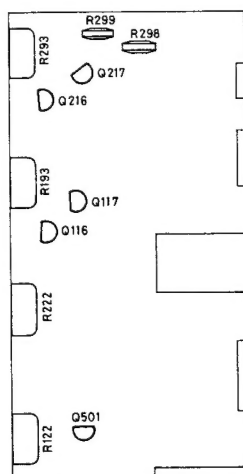
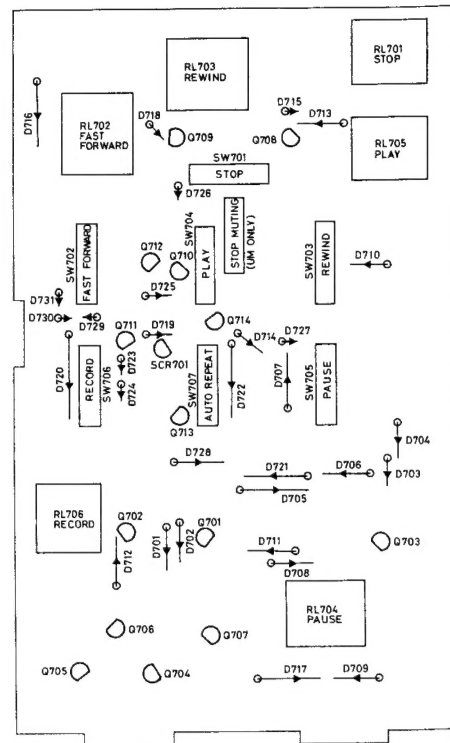
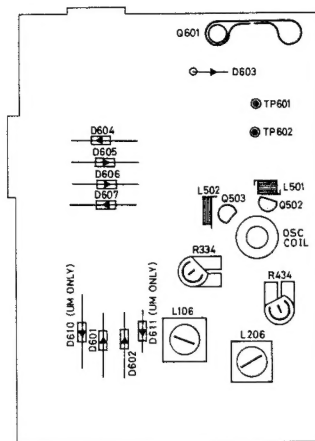
1. Set the unit into the PLAY mode.
2. Apply a tension gauge to the pinch roller. Read the gauge at the precise moment when the pinch roller separates from the capstan.
3. If the gauge reading falls more than 100 gr, no adjustment is necessary. If otherwise, make adjustment by changing the force of the spring coil. (See exploded view No. 17)



TORQUE ADJUSTMENT

1. Set the unit into the PLAY, FAST FORWARD or REWIND mode.
2. Measure the each torque with a torque gauge. They should be as following:

PLAY	30 - 50 gr/cm
FAST FORWARD	more than 90 gr/cm
REWIND	more than 90 gr/cm
3. If the each torque fails to reach the standard value. Clean the drive belt, flywheel, motor pulley, take-up reel, take-up pulley, idler and rewind roller with a cotton swab soaked in alcohol.

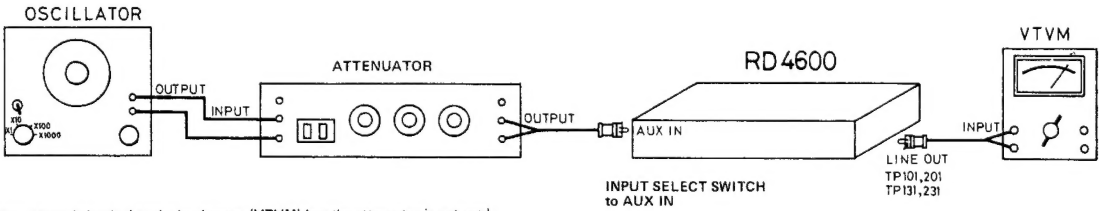


ADJUSTMENT

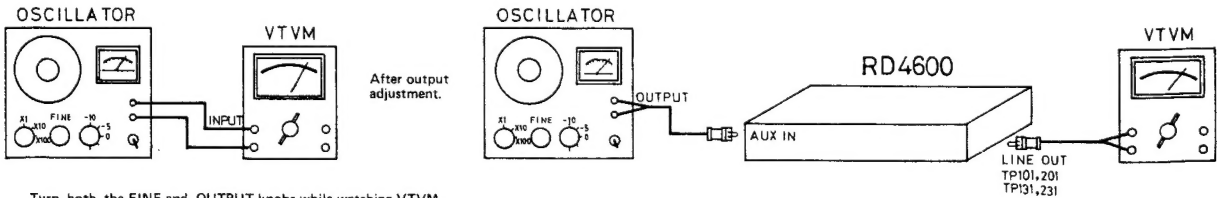
	SWITCH POSITION						VOLUME		
	R/P	LINE/MIC	ST LH CrOz	DOLBY ON/OFF	AUTO RETURN	400Hz OSC	OUTPUT LEVEL	INPUT LEVEL	DOLBY LEVEL
Head azimuth	P	—	ST	OFF	—	OFF	Adjust	Max.	Center
Wow & flutter	P	—	ST	OFF	—	OFF	Adjust	Max.	Center
Playback gain	P	—	ST	OFF	—	OFF	Max.	Max.	Center
Playback frequency response	P	—	ST	OFF	—	OFF	Adjust	Max.	Center
Bias trap	①	R	MIC	ST	OFF	—	Max.	Max.	Center
	②	R	MIC	ST	OFF	—	Max.	Max.	Center
Bias cuarent	R	MIC	ST	OFF	—	OFF	Max.	Max.	Center
19kHz trap	R	MIC	ST	OFF	—	OFF	Max.	Max.	Center
Dolby	①	R	LINE	ST	OFF	—	Max.	Max.	Center
	②	R	LINE	ST	OFF	—	Max.	Max.	Center
	③	R	LINE	ST	ON	—	Max.	Max.	Center
	④	R	LINE	ST	ON	—	Max.	Max.	Center
	⑤	R	LINE	ST	ON/OFF	—	Max.	Max.	Center
Recording Current	①	R	LINE	ST	OFF	—	Max.	Max.	Center
	②	R	LINE	ST	OFF	—	Max.	Max.	Center
	③	P	LINE	ST	OFF	—	Max.	Max.	Center
	④	R	LINE	CrO ₂	OFF	—	Max.	Max.	Center
	⑤	P	LINE	CrO ₂	OFF	—	Max.	Max.	Center
400Hz OSC	R	LINE	ST	OFF	—	ON	Max.	Adjust	Center
Meter	①	R	LINE	ST	OFF	—	Max.	Adjust	Center
	②	R	LINE	ST	OFF	—	Max.	At position ①	Center
Peak level	①	R	LINE	ST	OFF	—	Max.	Max.	Center
	②	R	LINE	ST	OFF	—	Max.	Max.	Center
	③	R	LINE	ST	OFF	—	Max.	Max.	Center

CONNECTIONS

There is no level meter for the CR oscillator but the attenuator is connected.



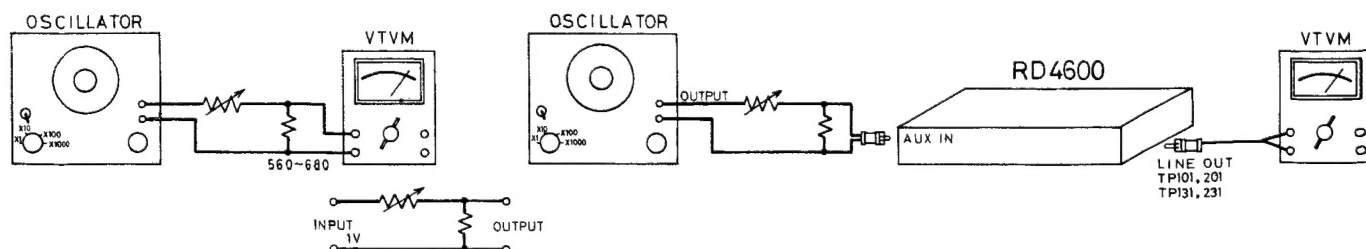
The CR oscillator is hooked to the level meter (VTVM) but the attenuator is not used.



Turn both the FINE and OUTPUT knobs while watching VTVM to adjust the output to 0 dB=1V or 0 dBm=0.775V.

INPUT			OUTPUT		ADJUSTMENT		REMARK
Frequ- ncy (Hz)	INPUT Terminal	INPUT Level	OUTPUT Terminal	OUTPUT Level (VTVM)	Left Channel	Right Channel	
		Test tape	LINE OUT	0.1 ~ 1V			10kHz recorded test tape.
		Test tape	LINE OUT	0.1 ~ 1V			3kHz recorded test tape.
400		400Hz Dolby test tape	TP-131 231	580mV	SVR R117	SVR R217	400Hz Dolby test tape. Adjust SVRs to obtain output of 580mV.
		Test tape	LINE OUT	0.1 ~ 1V	SVR R104	SVR R204	Playback 1kHz & 10kHz using test tape. Adjust SVRs R104 & R204 for standard frequency characteristics.
		Non input power	LINE OUT	Hum + noise + bias leakage = less than 6mV	L101	L201	Adjust L101 & L201 to obtain output of min.
		Non input power	PA		L106	L206	Adjust L106 & L206 to obtain output of min (less than 200mV).
		Non input power	TP-101 201	1.2mV	SVR R334	SVR R434	Adjust SVRs to obtain output of standard output.
19K	MIC		LINE OUT		L132	L133	Adjust L132 & L133 to obtain output of min.
400	AUX IN		TP-131 231	580mV	Input level VR	Input level VR	Adjust input level VRs to obtain output of 580mV.
5K	AUX IN	Input ① - 30dB	TP-131 231	18mV			Adjust input power to input ① - 30dB.
5K	AUX IN	Input ① - 30dB	TP-131 231	58mV	SVR R163	SVR R263	Turn SVR R158 & R258 to obtain output of max. Adjust SVR R163 & R263 to obtain output of standard output.
5K	AUX IN	Input ① - 30dB	TP-131 231	46mV	SVR R158	SVR R258	Adjust SVR R158 & R258 to obtain output of standard output.
5K	AUX IN	Input ① - 30dB	TP-131 231				Turn ON & OFF Dolby switch. Confirm difference in output is larger than 8dB. If not, re-adjust.
400	AUX IN	89mV \pm 12.6mV	TP-131 231	580mV	Input level VR	Input level VR	Adjust input level VRs to obtain output of standard output.
400	AUX IN	Same as input ①	TP-131 231	580mV	SVR R309	SVR R409	Playback recorded tape. Adjust SVRs R309 & R409 to make output levels identical. Use BASF C=60 tape.
400	AUX IN	Playback ②	TP-131 231	580mV			
400	AUX IN	Same as input ①	TP-131 231	580mV	SVR R308	SVR R408	Playback recorded tape. Adjust SVRs R308 & R408 to make output levels identical. Use Chrome C=60 tape.
400	AUX IN	Playback ④	TP-131 231	580mV			
			LINE OUT	0.775V	Input level VR	Input level VR	Adjust input level VRs to obtain output of 0.775V. OSC frequency 400 \pm 30dB.
400	AUX IN	100mV \pm 18mV	TP-131 231	460mV	Input level VR	Input level VR	Adjust input level VRs to obtain output of standard output.
400	AUX IN	Same as input ①			SVR R199	SVR R299	Adjust SVRs R199 & R299 until meters on amplifier stand at 0VU.
400	AUX IN	100mV \pm 18mV	TP-131 231	460mV	Input level VR	Input level VR	Adjust input level VRs to obtain output of standard output.
400	AUX IN	Same as input ①	TP-131 231	460mV	SVR R198	SVR R298	Meter readings should be 0dB at standard output level, at which peak indicator lamps should go on. Adjust SVRs so peak indicator lamps go off when input, decreases by 1dB.
400	AUX IN	Input - 1dB	TP-131 231	460mV	SVR R198	SVR R298	

- NOTES. 1. Keep at hand test tape, VTVM, CR OSC and tester in making repairs and conducting inspection work.
2. Do not allow grounding current to flow with voltage being applied to base-emitter circuit of Q601 (2SC1383),
when conducting inspection or making repairs. Otherwise, transistor will be destroyed.
3. Discharge capacitors prior to parts replacement.



EXAMPLE: Regulate VR so that output is 79mV to attenuate 22 dB at input of 1V.
Regulate VR so that output is 7.9mV to attenuate 42 dB at input of 1V.
Regulate VR so that output is 2.5mV to attenuate 52 dB at input of 1V.

PARTS LIST

Key. No.	Part No.	Description	Q'ty
PACKING			
	141-6-132T-51603	Individual carton	1
	141-6-313T-01700	Styrol filler, Side pad	2
	141-6-479T-01900	Label, DOLBY	1
	141-6-455T-01101	Serial number plate	2
	141-6-411T-56401	Instruction booklet	1
	141-6-472T-05604	Caution label, Power supply cord	1
	141-6-415T-07101	Notice, Head slide protector	1
	141-6-316T-60700	Pad, Remote control unit	1
	141-117-00	Remote control unit RB9600	1
		Polyethylene bag 100 x 200mm, Remote control unit & Cord	4
		Polyethylene bag 500 x 700mm, Set	1
	141-6-415T-11100	Notice, Swedish	1
	141-6-421T-27600	Schematic diagram	1
	141-6-415T-06700	Notice, SEMKO	1
	147-2-196T-00300	Cleaner stick	1

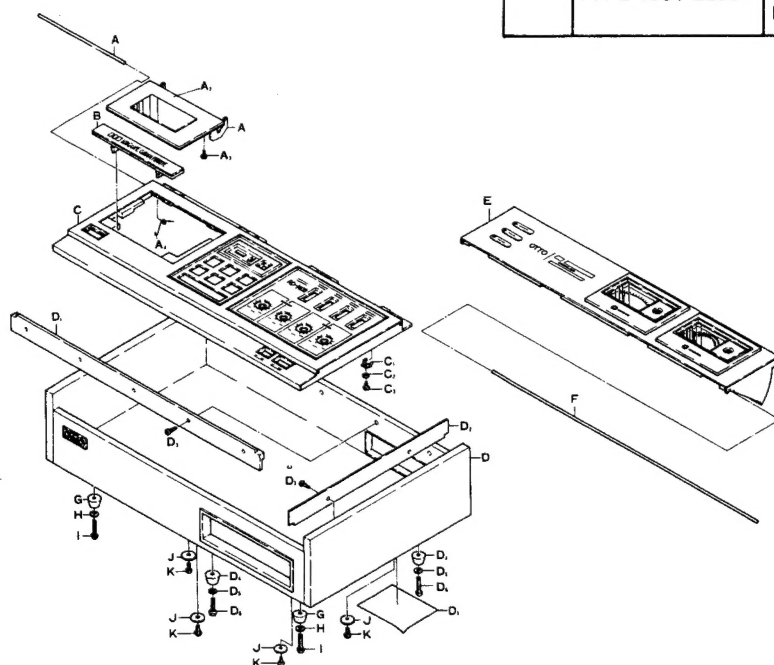
CABINET

Key. No.	Part No.	Description	Q'ty
D	141-0-111T-05403	Cabinet assembly	1
C	141-0-121T-02000	Deck panel assembly, Control	1
A	141-0-124T-00900	Cassette compartment lid assembly	1
B	141-0-134T-01201	Head cover assembly	1
E	141-0-121T-01801	Deck panel assembly, Meter	1
G	123-2-174R-10700	Stand, Rubber leg	2
J	141-2-457T-05300	Special washer, Cabinet fixer	4
F	141-2-751T-61900	Shaft, Meter deck panels' fulcrum	1
	141-2-163T-17500	Rotary knob, DOLBY CAL.	2
	141-2-851T-76300	Spring coil, (T-175) mtg.	2
	141-2-163T-17100	Rotary knob, DOLBY CAL.	2
	141-0-163T-05600	Rotary knob assembly	4
	141-2-157T-18300	Inlay, PAUSE	1
	141-2-157T-18400	Inlay, F. FWD	1
	141-2-157T-18500	Inlay, AUTO REPEAT PLAY	1
	141-2-157T-18600	Inlay, REC	1
	141-2-157T-18700	Inlay, PLAY	1
	141-2-157T-18800	Inlay, REWIND	1
		Fiber washer 4 x 13 x 0.5mm, chassis	1

CHASSIS

Key. No.	Part No.	Description	Q'ty
	141-2-311T-14300	Chassis	1
	141-2-741T-58700	Lever, Record mechanism	1

CABINET EXPLODED VIEW



Key. No.	Part No.	Description	Q'ty
CHASSIS			
	141-2-851T-70600	Spring coil, Record mechanism	1
	141-2-488T-00200	Lock pin, Solenoid couple	1
	141-2-743T-03300	Arm, Solenoid mtg.	1
	141-2-371T-05801	Bracket, Transformer mtg.	1
	141-2-143T-51400	Marking plate, Rear jack base	1
	147-2-411T-00600	Plate nut, Insert chassis	2
	141-2-751T-74300	Shaft, REC lever fulcrum	1
	141-0-741T-11400	Lever assembly	1
	141-2-464T-13100	Fixer, Panel up couple	1
	141-0-731T-07400	Slide assembly, Panel up lock	1
	141-2-741T-63800	Lever, Slide (T-074) mtg.	1
	141-2-488T-00400	Lock pin, Lever (T-638) mtg.	1
		Adhesive tape 5 x 10 x 5mm, Slide (T-704) to Lever (T-638)	1
	141-2-751T-66900	Shaft, Chassis (T-143) fixed	1
	141-2-614T-04400	Lever, Panel up lock	1
	141-2-851T-71100	Spring coil, Lever (T-044) lock operation	1
	141-2-851T-76400	Spring coil, Shaft (T-623) insert	1
	141-2-377T-12500	Bracket, VR mtg.	1
	147-2-411T-00601	Plate nut, Bracket (T-125) P.C.B. insert	1
	123-2-457T-11700	Special washer, VR mtg. to bracket (T-125) P.C.B.	4
	141-2-365T-22200	Bracket, DOLBY CAL SW mtg.	1
	141-2-164T-09100	Slide knob, CAL OSC SW	1
	141-2-143T-51300	Marking plate, Front jack base	1
	147-2-411T-00601	Plate nut, Marking plate (T-513) insert	1
	141-2-322T-21100	Shield plate	1
	141-2-322T-21200	Shield plate	1
	141-2-322T-21300	Shield plate	1
	141-2-322T-21500	Shield plate	1
	141-2-411T-05900	Plate nut, REC spring SW mtg.	1
	141-0-741T-12600	Lever assembly, Rec mechanism	1
	141-2-322T-28400	Shield plate, PT	1
	141-2-322T-23200	Shield plate, Chassis (T-143) mtg.	1
	141-2-311T-14400	Chassis, Relay SW	1
	141-2-851T-70800	Spring coil	6
	141-2-445T-13400	Rubber cushion, PL support	6
	141-2-751T-62100	Shaft, Push button (T-178) mtg.	2
	141-2-161T-17800	Push button	6
	141-2-135T-41200	Cover, voltage select	1
		Fiber washer 3 x 8 x 0.5mm PCB mtg.	1
	141-2-741T-80600	Lever	1
	141-2-569T-00900	Guide shaft	1
		Fiber heat 8 x 15 x 1 mm, Chassis mtg.	1
	141-6-476T-03100	Indication label	2
	141-6-476T-04200	Indication label	1
	141-2-135T-22001	Cover, Meter adjust holl	2
		Felt 10 x 10 x 10mm, Shield palte mtg.	1

PARTS LIST

Key. No.	Part No.	Description	Q'ty	Key. No.	Part No.	Description	Q'ty
CHASSIS				ELECTRICAL PARTS			
	141-0-161T-01700	Push button assembly, stop	1		4-235T-21800	Socket 3P, Panel ~Power supply P.C.B.	1
	141-2-741T-58400	Lever	1		141-2-472T-01200	Lug, Lead fixer	1
	141-2-851T-70700	Spring coil	1		4-511T-04072	Meter, VU	2
	141-2-751T-62000	Shaft, Push button (T-017) mtg.	1		4-235R-15000	Socket, Operation P.C.B. ~ REC solenoid (-)	3
	123-2-445R-11000	Rubber cushion, Chassis (T-144) insert	1			AUDIO Rewind SW	
	141-0-162T-02200	Lever knob assembly, Rec mode, Dolby N.R, Auto return	3			REC solenoid (+)	
	141-2-741T-58600	Lever	4		4-235T-27400	Socket	1
		Rubber cushion 4 x 10 x 1mm, Lever SW	8		141-2-472T-01200	Lug, Lead fixer	2
	141-2-161T-17600	Push button, POWER SW	1		141-2-472T-02300	Lug, VR earth	4
	141-2-377T-12400	Bracket, Chassis (T-143) fixer	1		123-2-474R-00200	Tip plug, Auto repeat PL relay	1
		Rubber cushion 8 x 10 x 10mm, P.C.B. and Bracket (T-124) mtg.	1		141-2-472T-01200	Lug, Bias lead fixer	1
	141-2-377T-12600	Bracket, Power supply P.C.B. fixer	1		141-2-464T-08700	Fixer, Lead	2
	141-2-161T-18200	Push button, MEMORY SW	1		4-235T-21900	Socket, MAIN ~Operating P.C.B. (2-1 ~5) 5P	1
	141-2-161T-18000	Push button, EJECT	1		4-235T-21900	Socket, MAIN ~Power supply (3-1 ~5) 5P	1
	141-2-367T-25300	Bracket, Remote control socket mtg.	1		141-2-472T-02200	Lug, Shield plate fixer	1
	141-2-143T-57100	Marking plate, Voltage select socket	1			Adhesive tape 12 x 18mm, Shield plate	5
	141-2-373T-04900	Bracket, Meter fixer	1			Adhesive tape 12 x 22mm, Shield plate	2
	141-2-741T-63900	Lever, Lever lock (614T-044) take off	1			Adhesive tape 12 x 10mm, Shield plate SW	3
	141-2-462T-28300	Boss, Lever (T-639) mtg.	1			Adhesive tape 12 x 20mm, Shield plate	1
	141-2-445T-13500	Rubber cushion, Meter (T-04072)	2		123-2-368R-12900	Heat sink, 2SC1383	1
	141-2-374T-08000	Bracket, PL (T-048) mtg.	1		123-2-474R-00200	Chip plug,	2
	141-2-681T-01901	Sleeve, Damper	1	PRINTED CIRCUIT BOARD ASSY (OPERATION)			
	141-2-751T-40700	Shaft, Damper	1		4-226T-66191	Printed circuit board assembly, OPERATION	1
		Spring pin 2 x 10mm, Damper mtg.	1	SW701 ~ 707	4-231T-11901	Special switch, Operation	7
	141-2-315T-10700	Reinforcement, Damper stopper	1		4-231T-11902	Special switch, Muting	1
	141-2-488T-00200	Lock pin, Damper mtg.	1		4-232T-01803	Relay	4
	141-2-851T-76100	Spring coil, Panel up	1	RL701,704,705,706			
	141-2-851T-76200	Spring coil, Panel up	1	PL701,705	4-612T-05700	Lamp 14V 30mA L=150mm	2
	141-2-445T-13600	Fixer, Spring coil (T-762) mtg.	1		4-226T-07300	Plug 12 pin, Mechanism ~ Operating P.C.B.	1
	141-2-851T-53400	Spring coil, Lever (T-639)	1		4-236T-06100	Plug 5 pin, Operating P.C.B. ~ MAIN P.C.B.	1
	141-2-445T-08700	Rubber cushion, PL mtg.	1	PL702,703	4-612T-05772	Lamp 14V 30mA L=90mm	2
	141-0-162T-02201	Lever knob Assy, Tape select	1	PL704,706	4-612T-05771	Lamp 14V 30mA L=130mm	2
	141-0-161T-01600	Push button assy, panel up	1	RL702,703	4-232T-04100		
	141-2-751T-62300	Shaft, panel up connection rod	1		4-232T-04300 or	Relay	2
					4-232T-04171		
					4-253T-01019	H.F. choke coil 4.7mH	1
ELECTRICAL PARTS						Transistor 2SC945Q	7
T501	4-251T-35100	Power transformer	1	L701			
	4-264T-04400	Magnetic coil, REC	1	Q701,702,706,709,711,712,713		Transistor 2SA564R or 2SA573 (4)	2
	4-231T-40800	Power switch	1	Q703,705		Transistor 2SC945R	1
	4-231T-11903	Special switch, REC solenoid	2	Q707		Transistor 2SA561(0, Y)	2
	4-231T-53600	Switch, voltage select	1	Q704,708		Transistor 2SA564R or 2SA573(4)	2
	123-2-464R-14400	Fixer, Power supply cord	1	Q710,714		Silicon control rectifier M21C	1
	123-2-474R-00200	Tip plug, PT 6V	1	SCR701		Diode DS-442 or 1S2473	31
	141-2-464T-07400	Fixer, AC ourd	1	D701,702,703,704,705,706,707,708,709,710,711,712,713,714,715,716,717,718,719,720,721,722,723,724,725,726,727,728,729,730,731			
	141-2-464T-08700	Fixer, Wiring disposition	1	D732		Diode RD8.2E(B, A)	1
	123-2-474R-00200	Tip plug, REC solenoid	2				
	4-243T-03100	Lead, RCA shield wire	4				
	4-231T-03101 or						
D608,609	123-2-382R-00600	Diode 1N4002, REC solenoid Terminal, REC. solenoid, Solenoid SW	2				
			3				
	141-2-472T-01200	Lug, AC lead fixer	1				
	123-2-472R-00600	Lug, R/P head lead fixer	1				
	123-2-472R-00600	Lug, Power SW earth	1				
	123-2-472R-00400	Lug, Power SW earth	1				
	4-241T-08300	Cassette tape C-12 type	1				
	141-2-472T-01200	Lug, REC solenoid & SW lead fixer	1				
	4-243T-77172	Power supply cord	1				
	4-234T-03600	Fuse 2A SEMCO	1				
	4-234T-01900	Fuse 0.8A SEMCO	2				
	141-2-383T-02001	Fuse holder 3P	1				
	123-2-472R-00600	Lug, PT case earth, Power SW shield earth	2				
	123-2-472R-00400	Lug, REC solenoid earth	1				
PL003	4-612R-12484	Lamp, DOLBY 6V 30mA	1				
PL004,005	4-612R-10172	Lamp, Peak indicator 6V 30mA L=500mm	2				
PL001	4-612R-12484	Lamp, MEMORY 6V 30mA	1				
PL002	4-612R-12484	Lamp, CrO ₂ 6V 30mA	1				
	4-235T-22100	Socket 8P, Panel ~MAIN	1				

NOTES: 1. Parts orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

PARTS LIST

Key No.	Part No.	Description	Q'ty
PRINTED CIRCUIT BOARD ASSY (OPERATION)			
		CAPACITORS	
C708		Electrolytic 0.22μF 16V	1
C716		Electrolytic 0.47μF 16V	1
C706,710		Electrolytic 1μF 16V	2
C705,707		Electrolytic 4.7μF 16V	2
C700,703		Electrolytic 10μF 16V	2
C704		Electrolytic 22μF 16V	1
C715		Electrolytic 22μF 25V	1
C701		Electrolytic 47μF 25V	1
C702		Electrolytic 100μF 16V	1
		RESISTORS	
R754		Carbon 33 ohm ±10%, 1/4W	1
R751		Carbon 150 ohm ±10%, 1/4W	1
R755		Carbon 220 ohm ±10%, 1/4W	1
R720,725,752		Carbon 1K ohm ±10%, 1/4W	3
R700,702		Carbon 1.5K ohm ±10%, 1/4W	2
R710		Carbon 1.8K ohm ±10%, 1/4W	1
R708,709,715		Carbon 2.2K ohm ±10%, 1/4W	3
R750,756		Carbon 2.7K ohm ±10%, 1/4W	2
R705		Carbon 3.9K ohm ±10%, 1/4W	1
R723,724		Carbon 5.6K ohm ±10%, 1/4W	2
R729		Carbon 6.8K ohm ±10%, 1/4W	1
R730		Carbon 8.2K ohm ±10%, 1/4W	1
R704,706,722,728,740		Carbon 10K ohm ±10%, 1/4W	5
R714		Carbon 12K ohm ±10%, 1/4W	1
R716,721		Carbon 15K ohm ±10%, 1/4W	2
R717,727		Carbon 33K ohm ±10%, 1/4W	2
R703,719		Carbon 47K ohm ±10%, 1/4W	2
R707		Carbon 100K ohm ±10%, 1/4W	1
R711,712,713		Carbon 120K ohm ±10%, 1/4W	3
R718,726		Carbon 270K ohm ±10%, 1/4W	2
PRINTED CIRCUIT BOARD ASSY (VR)			
R122,222	4-226T-60999	Printed circuit board assembly, VR	1
R193,293	4-222T-34000	Variable resistor 50KA, Record VR	2
	4-222T-33900	Variable resistor 10KA, Line out VR	2
R299	4-222T-03100	Variable resistor 2KB, Right meter	1
R298	4-222R-61100	Variable resistor 5KB, Right Peak ind.	1
S7	4-231T-42000	Switch, DOLBY 400Hz OSC	1
Q116,216	4-237T-00100	Terminal, TP	2
Q117,217,501		Transistor 2SC945P, Q	2
		Transistor 2SC945P	3
		CAPACITORS	
C113,213,114,214,116,216		Electrolytic 4.7μF 16V	6
C512		Electrolytic 10μF 16V	1
C117,217		Electrolytic 33μF 16V	2
C511		Electrolytic 100μF 6.3V	1
C500		Mylar 0.0022μF ±20% 50WV	1
C507,508,509		Mylar 0.01μF ±10% 50WV	3
C506		Mylar 0.039 or 0.04μF ±20% 50WV	1
		RESISTORS	
R192,292		Carbon 100 ohm ±5%, 1/4W	2
R194,294		Carbon 100 ohm ±10%, 1/4W	2
R329,429		Carbon 180 ohm ±10%, 1/4W	2
R197,297		Carbon 820 ohm ±10%, 1/4W	2

Key No.	Part No.	Description	Q'ty
PRINTED CIRCUIT BOARD ASSY (VR)			
R512		Carbon 1.8K ohm ±10%, 1/4W	1
R509		Carbon 3.9K ohm ±10%, 1/4W	1
R342,442		Carbon 4.7K ohm ±10%, 1/4W	2
R127,227		Carbon 6.8K ohm ±5%, 1/4W	2
R191,291,507,516		Carbon 15K ohm ±10%, 1/4W	4
R128,228		Carbon 18K ohm ±5%, 1/4W	2
R506,513		Carbon 18K ohm ±10%, 1/4W	2
R514		Carbon 22K ohm ±10%, 1/4W	1
R508		Carbon 47K ohm ±10%, 1/4W	1
R129,229,500,501		Carbon 68K ohm ±10%, 1/4W	4
R196,296		Carbon 100K ohm ±10%, 1/4W	2
PRINTED CIRCUIT BOARD ASSY (MAIN AMP.)			
	4-226T-60891	Printed circuit board assembly, MAIN	1
R301,302,401,402	4-222T-34200	Variable resistor 20KB x 2	2
R117,217	4-222R-60900	Potentiometer 50KB,	2
R199	4-222T-03100	Potentiometer 2KB, Left meter	1
R198	4-222R-61100	Potentiometer 5KB, Left peak ind.	1
R163,263	4-222T-32200	Potentiometer 500B, DOLBY gain	2
R158,258	4-222T-39475	Potentiometer 10KB, DOLBY ATT.	2
R104,204	4-222T-34800	Variable resistor 200KB, Frequency response (Playback) high	2
R308,408	4-222T-29800	Variable resistor 10KB, Bias	2
R322,422	4-222T-29871	Variable resistor 20KB, CrO ₂ frequency response (Record)	2
R309,409	4-222R-61500	Variable resistor 10KB, Bias	2
L101,201	4-255R-10400	Choke coil 5.6mH, IF	2
L102,202	4-252T-03200	Choke coil 10mH	2
L103,203	4-252T-03100	Choke coil 12mH	2
L104,204	4-252T-03300	Choke coil 6.8mH	2
L131,231	4-252T-02900	L.F. choke coil 36mH, DOLBY	2
L132,232	4-252T-02800	L.H. choke coil 23mH, 19kHz trap DOLBY	2
	4-235T-25000	Socket, MIC	2
	4-235T-25100	Socket, Headphone	1
	4-235T-23700	Socket, LINE IN, LINE OUT	4
	4-235T-23100	Socket, DIN	1
	4-231T-40100	Slide switch, Auto return	1
	4-231T-11302	Slide switch, R/P	2
	4-231T-40200	Slide switch, DOLBY	1
	4-231T-40171	Slide switch, Line/MIC DIN	1
	4-231T-16000	Slide switch, CrO ₂ /LH/Normal	1
	4-235R-15000	Terminal, Lead relay	1
	4-236T-06100	Plug 5 pin, Mechanism ~ MAIN	1
	4-236T-06000	Plug 8 pin, Panel ~ MAIN	1
Q109,209		FET 2SK30D	2
Q101,201		Transistor 2SC644T, S	2
Q102,202,103,203		Transistor 2SC644S	4
Q104,204		Transistor 2SC945R	2
Q106,206		Transistor 2SA628E	2
Q107,207		Transistor 2SC644R	2
Q108,208		Transistor 2SC945Q	2
Q111,211		Transistor 2SC945R	2
Q112,212		Transistor 2SA628E	2
Q113,213		Transistor 2SC945R, Q	2
Q114,214		Transistor 2SD227W, S	2
Q118,218,119,219,121,221		Transistor 2SC945P	6
D101,104,204,505		Diode 1N60	4
D102,103,106,202,203,206		Diode DS442	6
D107,207,108,208		Diode 1N60	4
D109,209,111,211		Diode DS442	4

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PARTS LIST

Key. No.	Part No.	Description	Q'ty	Key. No.	Part No.	Description	Q'ty
PRINTED CIRCUIT BOARD ASSY (MAIN AMP.)				PRINTED CIRCUIT BOARD ASSY (MAIN AMP.)			
D105		Diode VD1211 B1 } Pair or	1	R321,421		Carbon 1.5K ohm $\pm 10\%$, 1/4W	2
D105 (1)		Diode 1S1211 } Pair	1	R311,411		Carbon 1.8K ohm $\pm 10\%$, 1/4W	2
		VD1212 Gr } Pair	1	R121,221,		Carbon 2.2K ohm $\pm 10\%$, 1/4W	7
		1S1210 W } Pair	1	126,226,			
D501		Diode RD8,2E	1	141,241,			
				517			
		CAPACITORS		R176,276		Carbon 2.7K ohm $\pm 5\%$, 1/4W	2
C153,253		Electrolytic 0.33 μ F 10W	2	R154,254		Carbon 3.3K ohm $\pm 2\%$, 1/4W	2
C118,218,		Electrolytic 1 μ F 16 ~ 50WV	3	R133,233		Carbon 3.3K ohm $\pm 5\%$, 1/4W	2
505(1)				R102,202,		Carbon 3.3K ohm $\pm 10\%$, 1/4W	3
C504		Electrolytic 1 μ F 16 or 25WV	1	501			
C504(1)		Electrolytic 2.2 μ F 16WV	1	R151,251		Carbon 2.7K ohm $\pm 10\%$, 1/4W	2
C128,228		Electrolytic 3.3 μ F 25WV	2	R103,203		Carbon 3.9K ohm $\pm 10\%$, 1/4W	2
C101,201,		Electrolytic 4.7 μ F 16WV	12	R412		Carbon 4K ohm $\pm 10\%$, 1/4W	1
106,206,				R116,216,		Carbon 4.7K ohm $\pm 10\%$, 1/4W	6
136,236,				312,341,			
121,221,				441,518			
119,219,				R111,211,		Carbon 5.6K ohm $\pm 10\%$, 1/4W	4
111,211				303,403			
C122,222,		Electrolytic 10 μ F 10WV	6	R137,237,		Carbon 6.8K ohm $\pm 10\%$, 1/4W	3
148,248,				159			
139,239				R147,247,		Carbon 8.2K ohm $\pm 5\%$, 1/4W	4
C131,231,		Electrolytic 10 μ F 16WV	8	164,264			
137,237,				R167,267,		Carbon 8.2K ohm $\pm 10\%$, 1/4W	10
138,238,				114,214,			
154,254				168,268			
C505		Electrolytic 22 μ F 16WV	1	304,404			
C144,244,		Electrolytic 33 μ F 10WV	4	307,407			
147,247				R106,206,		Carbon 10K ohm $\pm 10\%$, 1/4W	6
C107,207		Electrolytic 100 μ F 6.3V	2	166,266,			
C501		Electrolytic 100 μ F 10WV	1	330,430			
C502		Electrolytic 100 μ F 16WV	1	R162,262,		Carbon 15K ohm $\pm 10\%$, 1/4W	6
C503		Electrolytic 470 μ F 16WV	1	178,278,			
C102,202		Mylar 470pF $\pm 10\%$ 50WV	2	327,427			
C129,229,		Mylar 680pF $\pm 20\%$ 50WV	4	R316,416		Carbon 18K ohm $\pm 10\%$, 1/4W	2
108,208				R113,213,		Carbon 22K ohm $\pm 10\%$, 1/4W	4
C109,209		Mylar 0.0075 μ F $\pm 10\%$ 50WV	2	149,249			
C126,226		Mylar 0.0082 μ F $\pm 10\%$ 50WV	2	R146,246		Carbon 27K ohm $\pm 10\%$, 1/4W	2
C123,223		Mylar 0.01 μ F $\pm 10\%$ 50WV	2	R143,243,		Carbon 33K ohm $\pm 10\%$, 1/4W	6
C124,224		Mylar 0.02 μ F $\pm 10\%$ 50WV	2	152,252,			
C142,242		Mylar 0.027 μ F $\pm 5\%$ 50WV	2	169,269			
C127,227		Mylar 0.027 μ F $\pm 20\%$ 50WV	2	R153,253		Carbon 39K ohm $\pm 5\%$, 1/4W	2
C151,251		Mylar 0.1 μ F $\pm 5\%$ 50WV	2	R118,218,		Carbon 47K ohm $\pm 10\%$, 1/4W	10
C152,252		Mylar 0.1 μ F $\pm 10\%$ 50WV	2	132,232,			
C146,246,		Mylar 0.1 μ F $\pm 20\%$ 50WV	5	136,236,			
149,249,				172,272,			
510				331,431			
C104,204		Ceramic 25pF $\pm 10\%$ 50WV	2	R101,201,		Carbon 56K ohm $\pm 10\%$, 1/4W	4
C103,203		Ceramic 100pF $\pm 10\%$ 50WV	2	317,417			
C112,212		Ceramic 500pF $\pm 10\%$ 50WV	2	R314,414,		Carbon 82K ohm $\pm 10\%$, 1/4W	4
C132,232		Styrol 3900pF $\pm 5\%$ 50 ~ 125WV	2	324,424			
C133,233		Styrol 3000pF $\pm 5\%$ 50 ~ 125WV	2	R105,205		Carbon 100K ohm $\pm 10\%$, 1/4W	4
C134,234		Styrol 2200pF $\pm 5\%$ 50 ~ 125WV	2	119,219			
C141,241		Styrol 5600pF ± 2.5 or $\pm 5\%$ 50 ~ 125WV	2	R171,271		Carbon 120K ohm $\pm 10\%$, 1/4W	2
				R144,244,		Carbon 150K ohm $\pm 5\%$, 1/4W	4
				148,248			
C143,243		Styrol 4700pF ± 2.5 or $\pm 5\%$ 50 ~ 125WV	2	R142,242		Carbon 180K ohm $\pm 5\%$, 1/4W	2
				R108,208,		Carbon 220K ohm $\pm 10\%$, 1/4W	6
				156,256,			
		RESISTORS		313,413			
R123,223,		Carbon 10 ohm $\pm 10\%$, 1/4W	3	R179,279		Carbon 270K ohm $\pm 10\%$, 1/4W	4
505				181,281			
R174,274,		Carbon 33 ohm $\pm 10\%$, 1/4W	4	R131,231,		Carbon 470K ohm $\pm 10\%$, 1/4W	4
318,418				326,426			
R177,277		Carbon 47 ohm $\pm 10\%$, 1/4W	2	R161,261		Carbon 680K ohm $\pm 10\%$, 1/4W	2
R182,282,		Carbon 100 ohm $\pm 10\%$, 1/4W	4	R112,212		Carbon 1M ohm $\pm 10\%$, 1/4W	2
319,419				R110,210		Carbon 3.9M ohm $\pm 10\%$, 1/4W	2
R138,238,		Carbon 120 ohm $\pm 10\%$, 1/4W	4				
328,428							
R107,207,		Carbon 220 ohm $\pm 10\%$, 1/4W	3				
504							
R157		Carbon 270 ohm $\pm 10\%$, 1/4W	1				
R323,423		Carbon 470 ohm $\pm 10\%$, 1/4W	2				
R134,234,		Carbon 560 ohm $\pm 10\%$, 1/4W	4				
139,239							
R109,209		Carbon 680 ohm $\pm 10\%$, 1/4W	2				
R173,273		Carbon 1K ohm $\pm 5\%$, 1/4W	2				
R503		Carbon 1K ohm $\pm 10\%$, 1/4W	1				

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PARTS LIST

Key No.	Part No.	Description	Q'ty
PRINTED CIRCUIT BOARD ASSY (POWER)			
TP601,602 Q601 Q502,503 D601,602 D604,605, 606,607 D603 D610,611	4-236T-06400	Plug 3 pin, POWER ~ Panel	1
	123-2-474R-00200	Chip plug, Mechanism power supply, Power P.C.B. ~ Mechanism memory P.L.	3
	123-2-382R-00291	Terminal	2
	123-2-474R-00200	Chip plug, C620 ~ REC solenoid	1
		Transistor 2SC1383R	1
		Transistor 2SC945P	2
		Diode 1N4002	2
		Diode 1N4001	4
		Diode WZ 192	1
		Diode 1N4002	2
CAPACITORS			
C620 C610 C607 C604 C605,606		Electrolytic 470μF 16WV	1
		Electrolytic 100μF 25WV	1
		Electrolytic 1000μF 25WV	1
		Electrolytic 1000μF 35WV	1
		Electrolytic Block 470 + 1000μF 25WV	1
		Mylar 0.01μF ±20% 50WV	1
		Mylar 0.033μF ±20% 50WV	1
		Ceramic 100pF ±10% 50WV	2
		Ceramic 180pF ±5% 50WV	2
		Ceramic 0.01μF +100 -0% 500WV	3
C613 C522 C193,293 C191,291 C601,602, 603 C521 C614,615		Styrol 2200pF ±5% 500WV	1
		Ceramic 0.01μF +80-20% 50WV	2
		RESISTORS	
		Carbon 5.6 ohm ±10%, 1/4W	1
		Carbon 4.7 ohm ±10%, 1/4W	2
		Carbon 56 ohm ±10%, 1/4W	1
		Carbon 180 ohm ±10%, 1/4W	1
		Carbon 390 ohm ±10%, 1/4W	1
		Carbon 2.2K ohm ±10%, 1/4W	1
		Carbon 22K ohm ±10%, 1/4W	1
SCREW MOUNTING			
		Pan head screw 2 x 18mm	2
		Pan head screw 2.6 x 4mm	4
		Pan head screw 2.6 x 6mm	2
		Pan head screw 3 x 6mm	6
		Pan head screw 3 x 8mm	6
		Pan head screw 3 x 10mm	1
		Pan head screw 3 x 12mm	2
		Pan head screw 3 x 30mm	2
		Pan head screw 3 x 35mm	1
		Pan head screw 4 x 8mm	1
		Pan head screw 4 x 10mm	2
		Pan head screw 4 x 16mm	4
		Pan head screw 4 x 20mm	2
		Tapping screw 3 x 6mm	7
		Tapping screw 3 x 8mm	43
		Tapping screw 3 x 10mm	9
		Tapping screw 3 x 12mm	2
		Regular hexagon bolt 3 x 16mm	2
		Regular hexagon nut 3mm	8
		Washer 3mm	2
		Washer 2mm	2
		Washer 3 x 8 x 0.5mm	1
		Washer 3 x 10 x 0.5mm	3
		Washer 4.5 x 10 x 0.8mm	2
		External tooth lock washer 4mm	1
		External "E" ring 2mm	1
		External "E" ring 3mm	1
MECHANISM			
1 3 4 5 6	149-085-00	Mechanism assembly TM-4600	1
	141-0-311T-02200	Chassis assembly	1
	141-2-472T-01000	Lug, Brake solenoid, Terminal board	4
		Chassis upper, Bracket counter	
	141-2-472R-00600	Lug, Bracket play SW mtg.	1
	141-0-741T-10301	Lever assembly, Slide operation	1
	141-2-851T-72500	Spring coil, Solenoid joint	1

Key No.	Part No.	Description	Q'ty
MECHANISM			
7	141-2-569T-00300	Guide shaft, Spring hook	1
8	4-264T-04700	Solenoid, Play	1
9	141-2-365T-22500	Bracket, Micro SW mtg.	
10	4-231T-11902	Switch, Solenoid coil changer	1
11	141-2-327T-07600	Insulator, Micro SW	4
12	141-2-751T-67900	Shaft, Muting SW operating	1
13	4-231T-11903	Switch, Muting	1
14	141-2-365T-25000	Bracket, Switch mtg.	1
15	4-231T-31171	Switch, Head slide operating (Snap SW)	1
16	141-0-545T-01400	Pinch roller lever assembly	1
17	141-2-852T-18000	Spring wire, Pinch lever pressure	1
18	141-0-731T-08500	Slide assembly, Head	1
19	141-2-851T-72600	Spring coil, Slide returning	1
20	123-2-472R-00600	Lug, Head slide	1
21	141-2-375T-05900	Bracket, Head mtg.	1
22	4-242T-15900	R/P head	1
23	4-242T-16800	E head	1
24	141-2-851T-58400	Spring coil, Head alignment adjust	1
25	141-2-472T-02200	Lug, R/P head lead alignment	2
26	141-0-531T-02600	Reel plate assembly, Supply	1
27	141-0-531T-02700	Reel plate assembly, Take up	1
28	141-2-536T-01500	Reel cap	2
29	141-0-662T-01300	Roller assembly, Take up idlar	1
30	141-0-741T-10400	Lever assembly, Take up idlar	1
31	141-2-851T-62700	Spring coil, Idlar pressure	1
32	141-2-741T-59300	Lever, Idlar	1
33	141-0-741T-10500	Lever assembly, Back tension	1
34	141-2-851T-72900	Spring coil, Back tension	1
35	141-2-751T-63600	Shaft, Back tension	1
36	141-2-322T-22100	Shield plate, Motor	1
37	141-0-741T-10700	Lever assembly, F. FWD REW	1
38	141-2-852T-24800	Spring wire, REW F. FWD roller pressure	1
39	141-0-731T-07300	Slide assembly, Tension	1
40	141-2-462T-24700	Boss, Slide bearing	1
41	141-2-462T-29800	Boss, Spring hook	1
42	141-2-662T-07901	Roller, F. FWD REW	1
43	141-0-741T-10900	Lever assembly	1
44	141-0-662T-01600	Roller assembly, F. FWD filiction	1
45	141-2-731T-26200	Slide, Brake lower	1
46	141-2-741T-59800	Lever, Slide operation	1
47	141-2-683T-03500	Ring	1
48	141-2-851T-73000	Spring coil, Slide pressure	1
49	4-264T-04300	Solenoid, Brake	1
50	4-527T-07600	Brushless motor assembly	1
51	4-527T-07500	Commutate motor assembly	1
52	141-2-461T-19600	Pipe, Motor mtg.	2
53	141-2-322T-21700	Shield plate	2
54	141-2-811T-03000	Counter	1
55	141-2-812T-04100	Bracket, Counter mtg.	1
56	141-2-365T-07200	Bracket, Switch mtg.	1
57	141-2-472T-01000	Lug, Motor lead retainer	2
58	141-2-661T-18200	Pulley, Relay	1
59	141-2-765T-01300	Magnet	1
60	141-2-562T-03100	Round belt, Counter drive reel side	1
61	141-2-562T-03400	Round belt, Counter drive counter side	1
62	4-231T-42700	Push switch, Counter	1
63	4-226T-61400	Printed circuit board, Lead switch mtg	1
64	4-231T-41300	Lead switch	1
65	141-0-741T-05300	Lever assembly, Cassette up lever	1
66	141-0-747T-01000	Bracket lever assembly	1
68	4-231T-11902	Switch, Prevent the miss recording	2
69	141-2-243T-06300	Eject stop	
70	141-2-327T-07600	Base, Micro switch operation	2
71	141-2-853T-32800	Insulator, Micro switch mtg.	4
72	141-2-741T-59900	Spring plate, Cassette pressure	1
73	141-2-747T-06800	Lever, Button slide	1
74	141-0-741T-11000	Bracket, Lever mtg.	1
75	141-0-741T-11000	Lever assembly, Eject	1
76	141-2-751T-58600	Spring coil, Lever returning	1
		Electrical capacitor 470μF 16V,	1
		Solenoid noise prevent	
77	147-2-363T-02100	Bracket, Capacitor mtg.	1
78	141-2-214T-00900	Bracket, Front flame	1
	141-2-214T-00901	or	
79	141-2-214T-01000	or	
	141-2-214T-01001	or	
67	141-0-741T-00900	Bracket Assy, Lever (65) fulcrum right	1

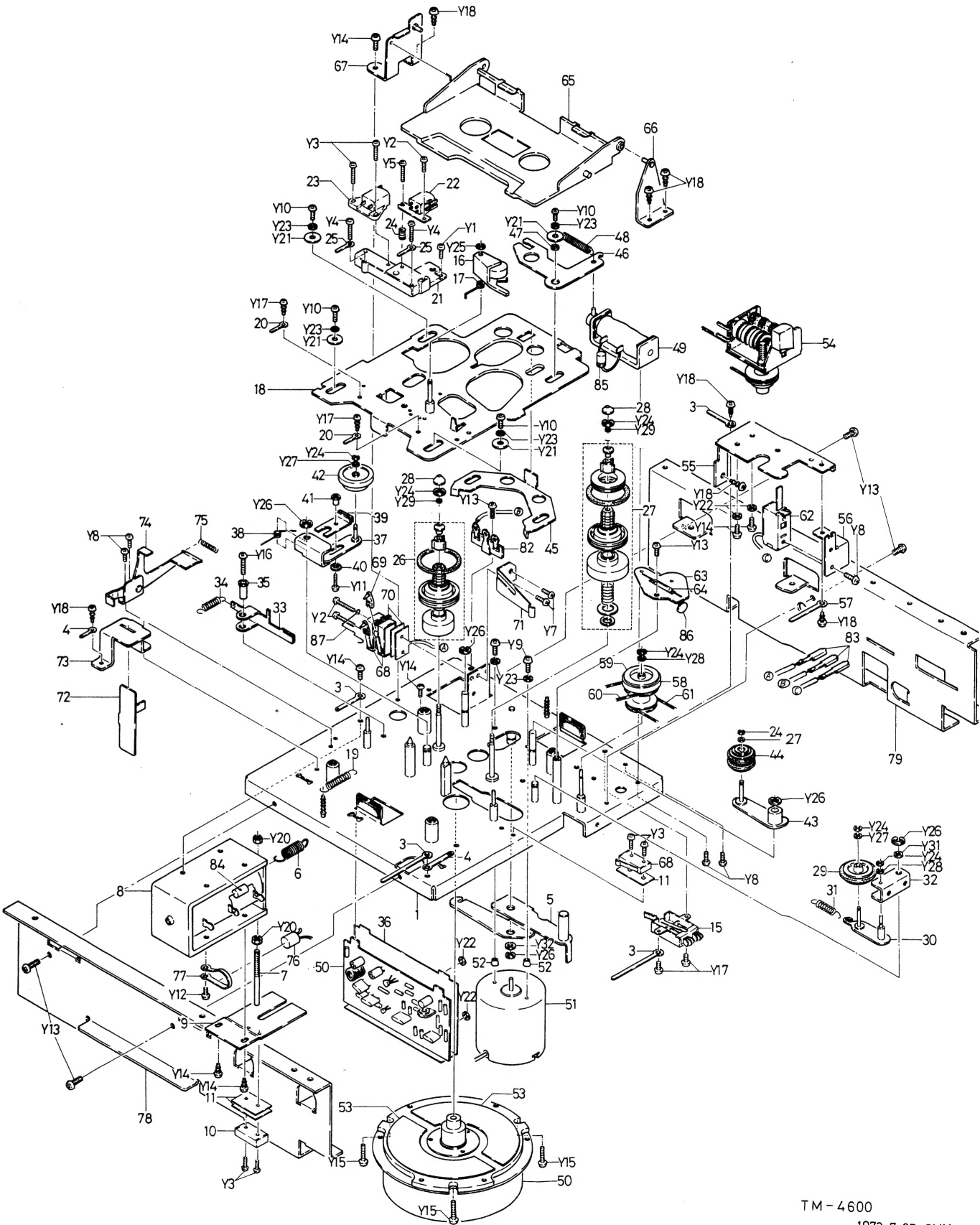
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PARTS LIST

Key No.	Part No.	Description	Q'ty
MECHANISM			
80	4-235T-25200	Socket, Operation part connect	1
81	4-235T-21900	Socket, Mechanism MAIN connect	1
82	4-237T-05800	Terminal board, Lug plate	1
83	123-2-382R-00600	Terminal	3
84		Diode 1N4002, Solenoid noise prevent	1
85		Electrical capacitor 4.7μF 25V, Solenoid noise prevent	1
86		Ceramic capa. 0.01μF +80-20% 50WV	1
87	141-2-465T-12000	Stopper, Micro switch mtg.	1
MECHANISM SCREW			
Y 1		Pan head screw 2 x 4mm	1
Y 2		Pan head screw 2 x 5mm	1
Y 3		Pan head screw 2 x 8mm	5
Y 4		Pan head screw 2 x 10mm	2
Y 5		Pan head screw 2 x 12mm	1
Y 6		Pan head screw 2 x 15mm	2
Y 7		Pan head screw 2.6 x 3mm	3
Y 8		Pan head screw 2.6 x 4mm	4
Y 9		Pan head screw 2.6 x 7mm	2
Y10		Pan head screw 2.6 x 8mm	4
Y11		Pan head screw 2.6 x 10mm	1
Y12		Pan head screw 3 x 4mm	3
Y13		Pan head screw 3 x 5mm	10
Y14		Pan head screw 3 x 6mm	7
Y15		Pan head screw 3 x 12mm	3
Y17		Tapping screw 3 x 4mm	4
Y18		Tapping screw 3 x 6mm	6
Y20		Regular hexagon nut 3mm	2
Y21		Washer 2.7 x 10 x 0.5mm	4
Y22		Washer 3 x 8 x 0.5mm	4
Y23		Spring washer 2.6mm	6
Y24		External "E" ring 1.5mm	7
Y25		External "E" ring 1.9mm	1
Y26		External "E" ring 3.2mm	5
Y27		Graphite nylon washer 2 x 4 x 0.25mm	4
Y28		Graphite nylon washer 2 x 4 x 0.5mm	2
Y29		Graphite nylon washer 2.5 x 4.7 x 0.13mm	4
Y30		Graphite nylon washer 1.8 x 12 x 0.5mm	1
Y31		Graphite nylon washer 4 x 6.5 x 0.25mm	1
Y32		Graphite nylon washer 5.2 x 8 x 0.5mm	1
Y33		Graphite nylon washer 3 x 5.4 x 0.5mm	1
Y34		Washer 2.5 x 4.4 x 0.4mm	1

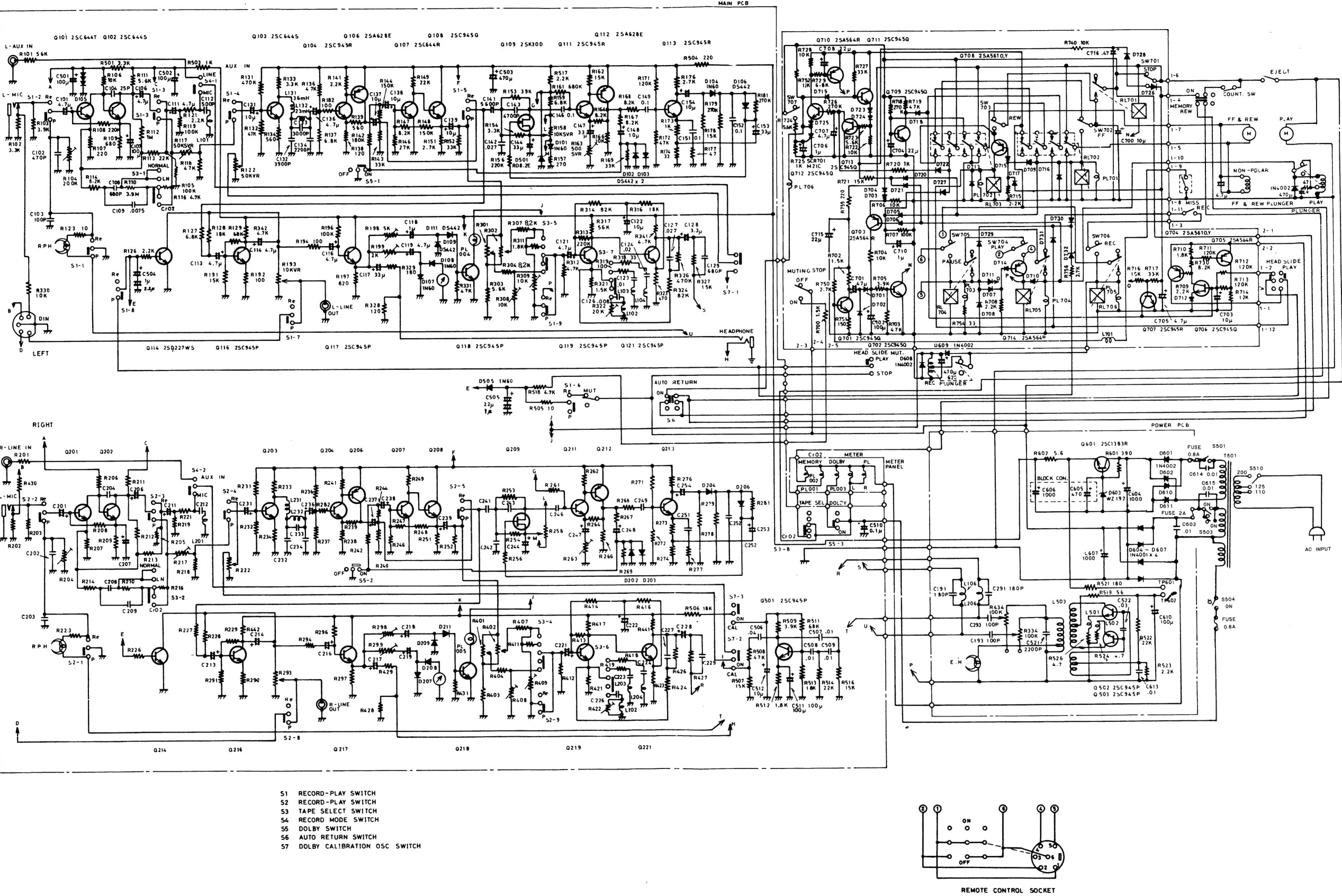
NOTES: 1. Parts orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

EXPLODED VIEW



TM-4600
1973 7.25 CHK.
Oct. 1, 1975 CHK.

SCHEMATIC DIAGRAM



Subject to change without notice.

